WHAT IS CLAIMED IS:

1. An insulating ceramic compact comprising a fired mixture of $MgAl_2O_4$-based ceramic and borosilicate glass,

wherein the borosilicate glass comprises an $MgAl_2O_4$ crystal phase and at least one of an $Mg_3B_2O_6$ crystal phase and an $Mg_2B_2O_5$ crystal phase.

2. An insulating ceramic compact according to Claim 1, wherein the borosilicate glass further comprises an Mg_2SiO_4 crystal phase.

3. An insulating ceramic compact according to Claim 2, wherein the borosilicate glass comprises about 8 to 60 wt% of boron oxide calculated as B_2O_3, about 10 to 50 wt% of silicon oxide calculated as SiO_2 and about 10 to 55 wt% of magnesium oxide calculated as MgO.

4. An insulating ceramic compact according to Claim 3, wherein the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as B_2O_3, about 13 to 38 wt% of silicon oxide calculated as SiO_2 and about 35 to 53 wt% of magnesium oxide calculated as MgO.

5. An insulating ceramic compact according to Claim 4, wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.

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6. An insulating ceramic compact according to Claim 2, wherein the ratio of the $MgAl_2O_4$-based ceramic to the borosilicate glass is in the range of from about 20 : 80 to 80 : 20 on a weight basis.

7. An insulating ceramic compact according to Claim 2, wherein the borosilicate glass contains about 5 to 80 wt% of the $MgAl_2O_4$ and about 5 to 70 wt%of the at least one of $Mg_3B_2O_6$ and $Mg_2B_2O_5$, based on the total amount of the Mg_2SiO_4, $Mg_3B_2O_6$ and $Mg_2B_2O_5$ crystal phases.

8. An insulating ceramic compact according to Claim 7, wherein the ratio of the $MgAl_2O_4$-based ceramic to the borosilicate glass is in the range of from about 20 : 80 to 80 : 20 on a weight basis, the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as B_2O_3, about 13 to 38 wt% of silicon oxide calculated as SiO_2 and about 35 to 53 wt% of magnesium oxide calculated as MgO, and wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.

9. An insulating ceramic compact according to Claim 1, wherein the borosilicate glass comprises about 8 to 60 wt% of boron oxide calculated as B_2O_3, about 10 to 50 wt% of silicon oxide calculated as SiO_2 and about 10 to 55 wt% of magnesium oxide calculated as MgO.

10. An insulating ceramic compact according to Claim 9, wherein the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as B_2O_3, about 13 to 38 wt% of silicon oxide calculated as SiO_2 and about 35 to 53 wt% of magnesium oxide calculated as MgO.

11. An insulating ceramic compact according to Claim 10, wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.

12. An insulating ceramic compact according to Claim 1, wherein the ratio of the $MgAl_2O_4$-based ceramic to the borosilicate glass is in the range of from about 20 : 80 to 80 : 20 on a weight basis.

13. An insulating ceramic compact according to Claim 1, wherein the borosilicate glass contains about 5 to 80 wt% of the $MgAl_2O_4$ and about 5 to 70 wt%of the at least one of $Mg_3B_2O_6$ and $Mg_2B_2O_5$, based on the total amount of the Mg_2SiO_4, $Mg_3B_2O_6$ and $Mg_2B_2O_5$ crystal phases.

14. An insulating ceramic compact according to Claim 13, wherein the ratio of the $MgAl_2O_4$-based ceramic to the borosilicate glass is in the range of from about 20 : 80 to 80 : 20 on a weight basis, the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as B_2O_3, about 13 to 38 wt% of silicon oxide calculated as SiO_2 and about 35 to 53 wt% of magnesium oxide calculated as MgO, and wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.

15. A ceramic multilayer substrate comprising:

a plurality of insulating ceramic layers comprising an insulating ceramic compact according to Claim 1; and

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a plurality of internal electrodes on the plurality of insulating ceramic layers.

16. A ceramic multilayer substrate according to Claim 15, having on at least one surface of each of the insulating ceramic layers, a second ceramic layer which has a dielectric constant higher than that of the insulating ceramic layer on which it is disposed.

17. A ceramic multilayer substrate according to Claim 15, wherein a pair of the internal electrodes and at least a part of a insulating ceramic layer form a laminated capacitor.

18. A ceramic multilayer substrate according to Claim 17, wherein a plurality of internal electrodes form a coil conductor, whereby a laminated inductor has been formed.

19. A ceramic electronic device comprising:

a ceramic multilayer substrate according to Claim 15; and

at least one electronic element mounted on the ceramic multilayer substrate so as to form a circuit together with the plurality of internal electrodes.

20. A ceramic electronic device according to Claim 19, further comprising:

a plurality of external electrodes on the bottom surface of the ceramic multilayer substrate; and

wherein the substrate contains throughholes having conductors therein, the conductors electrically connecting an external electrode to an internal electrode or to the electronic element.